# TOTAL COLIFORM RULE (TCR) MICROBIOLOGY COMPLIANCE SAMPLING COLLECTION GUIDE

Kansas Public Water Supply Systems using the Kansas Health and Environmental Laboratories



Prepared by
Kansas Department of Health and Environment
Bureau of Water
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Microbiological Sampling Guide

## TOTAL COLIFORM RULE (TCR) MICROBIOLOGY SAMPLING

Microbiological samples are required to be routinely collected every month for compliance with the Total Coliform Rule (TCR).

All public water supply systems are required by state regulation K.A.R. 28-15-19(a) to disinfect all drinking water provided to the public. To evaluate the effectiveness of the disinfection method employed, all systems are required by state regulation K.A.R. 28-15a-21 to submit monthly water samples from distribution taps for total coliform testing. Total coliform testing is used as an indicator of the presence of other bacteriological contaminants. Public water supply regulations can be found online at the Kansas Department of Health and Environment, Public Water Supply Section website <a href="http://www.kdheks.gov/pws/index.html">http://www.kdheks.gov/pws/index.html</a>.

The purpose of this document is to provide a quick guide for collecting microbiological samples. The Total Coliform Rule Survival Guide is available online at the KDHE, Public Water Supply Section website <a href="http://www.kdheks.gov/pws/index.html">http://www.kdheks.gov/pws/index.html</a>, and is a more extensive guide on all facets of the TCR.

The Kansas Health and Environmental Laboratories (KHEL) is part of the Division of Environment under the Kansas Department of Health and Environment (KDHE).

The KHEL fee is \$8 for coliform determination of compliance samples.

# What is in a Microbiological Sample Kit from KHEL for routine TCR sampling?

- 150 ml clear plastic bottle
- Return address label
- Sample submission card (sample collection instructions on the back of card)

Figure 1-MIC is a picture of what is contained in a microbiological sample kit from KHEL for collecting routine samples for the TCR. A barcode label on the card will have the system's KHEL account number and the bottle identification number. The sample submission card has collection instructions printed on the back. A sample submission card must be completed for each microbiological sample. The return address label is to be placed on the outside of the package when ready to ship the samples back to KHEL.

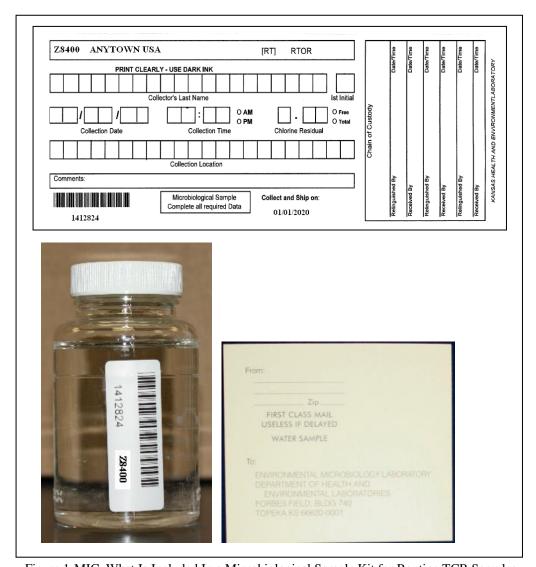


Figure 1-MIC. What Is Included In a Microbiological Sample Kit for Routine TCR Samples

Figure 2-MIC indicates a microbiological sample submission card for routine TCR samples with added labeling. A sample submission card must be completed for each microbiological sample.

Fill out the form completely and neatly! If there is a problem with the sample, KHEL personnel will call the sample collector and try to resolve it. However, if they are unable to make contact the sample may be rejected and the system will have to re-collect the sample.

On the sample submission card, the boxes above *Chlorine Residual* are for recording the level of chlorine in the sample. It is important to mark whether the chlorine reading is for Free Chlorine or Total Chlorine (aka Combined Chlorine). The boxes above *Collection Location* are for recording the collection site as labeled on the system's annual bacteriological sampling site plan (e.g., street address or site zone plus number). If the sample collector feels there is something important for KHEL analysts to know about the sample, comments should be written in the *Comments* box. Each sample submission card needs to be matched with the bottle in the sample kit that has the same bottle ID number on its barcode label. If the sample kit contains sample submission cards and bottles that don't match, call KHEL at 785-296-0971 and inform them of the situation.

Pay close attention to the scheduled sample collection month on the routine sample submission card. KHEL sends the bottles out 10-15 days early each month and they can possibly arrive in the month previous to the collection date. If you collect a sample in a bottle designated for a different collection month, you may have collected too many samples in one month and not enough the next month. This mistake could place the system out of compliance for the required number of samples.

The *Chain of Custody* section of the sample submission card is where the sample collector should write their name and the date they hand the sample over to another person, whether it be a mailing service or other system personnel. The other lines in the *Chain of Custody* section only need to be used if the sample collector is passing the sample to someone other than the courier service that will be delivering the sample to KHEL.

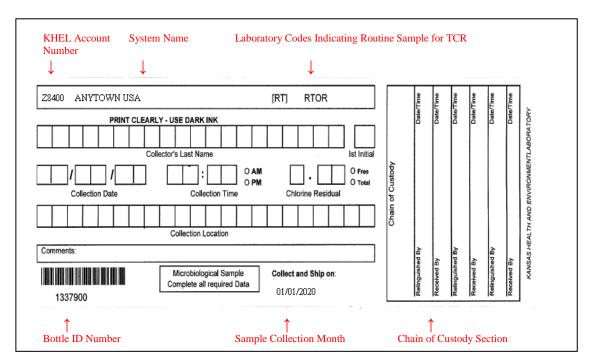


Figure 2-MIC. Details of a Microbiological Sample Submission Card for Routine TCR Samples

#### COLLECTING AND SHIPPING THE MOCROBIOLOGY SAMPLE

Collect and return a sample in each bottle received for your system. Routine samples must be collected within the scheduled month. The sample should be collected on a Monday, Tuesday or Wednesday that does not fall on or around a holiday. After collection, the sample must reach KHEL within 30 hours. Payment for additional courier services (next day or priority shipping) may be necessary to ensure the sample will be delivered on time.

#### **Collecting the Microbiology Sample**

Read through the sample collection instructions that are on the sample submission card before collecting. For questions or concerns about the sample collection process, call KHEL at 785-296-0971 for assistance.

Figure 3-MIC indicates an example of a log that meets the requirements of K.A.R. 28-15a-33, it is in the system's best interest to keep a log that includes bottle ID numbers, locations where the bottles were used, chlorine residual and other sample information.

		TOTAL COI	LIFORM SAMPLING F	RECORD			
SYSTEM NAME:				ACCOUNT No:			
DATE	TIME	COLLECTOR	SAMPLE LOCATION	CHLORINE RESIDUAL (mg/L)	pН	BOTTLE NUMBER (last 4 digits	

Figure 3-MIC. Example of a Log for Microbiological Sampling

# **Shipping the Microbiology Sample**

As soon as possible after collecting the sample, place the container and the completed sample submission card into the shipping box and tape shut. Fill out the Return Address on the shipping label and tape securely to the package. Payment for additional courier services (next day or priority shipping) may be necessary to ensure the sample will be delivered to KHEL on time.

#### SUMMARY OF MICROBIOLOGY SAMPLE COLLECTION

- Upon receipt of the sample kit, open and review the scheduled sample collection month.
- Check that the KHEL account number is correct.
- Match each bottle to its proper sample submission card using the bottle ID numbers.
- Fill out the sample collection site address on the sample submission cards at the time of collection.
- Keep a log of microbiological sampling information.
- Follow the sample collection instructions that are on the back of the sample submission card.
- Include the completed sample submission card with each bottle
- Ship on the same day collected to ensure that the sample will arrive at KHEL within 30 hours.

The following pages indicate pictures of microbiological sample submission cards for other microbiological samples that a system may receive for collecting samples in compliance with drinking water regulations. There is not much difference between how the sample submission cards look other than the laboratory code at the top and a color coded box at the bottom. However, the purpose of the sample collected is of great significance in determining the system's compliance with drinking water regulations.

#### Replacement Sample

Figure 4-MIC indicates a sample submission card for a replacement sample. The replacement sample needs to be collected and shipped on the next Monday, Tuesday or Wednesday after receiving the bottle. A replacement bottle is sent to the system when an error has occurred with a required microbiological sample for TCR.

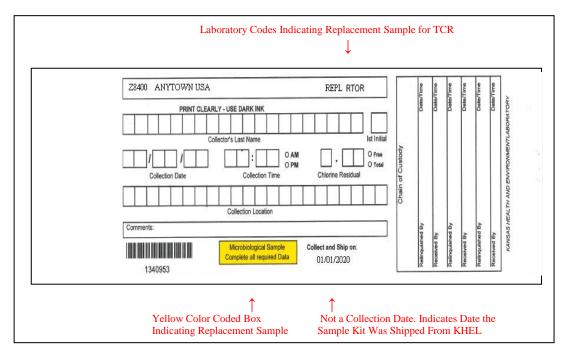


Figure 4-MIC. Sample Submission Card for a Replacement Sample

# Repeat Sample

Figure 5-MIC indicates three sample submission cards for a set of three repeat samples. Three repeat samples are required in response to a routine sample having a positive result. Repeat samples must be collected together on the next Monday, Tuesday or Wednesday after receiving the bottles, and mailed back together.

#### Repeat Positive Original Sample (RPOR)

The bottle that matches the card coded with RPOR must be collected at the original positive site.

#### Repeat Positive Upstream (RPUP)

The bottle that matches the card coded with RPUP must be collected within five (5) service connections up from the original positive site.

#### Repeat Positive Downstream (RPDN)

The bottle that matches the card coded with RPDN must be collected within five (5) service connections down from the original positive site.

# Three Sample Submission Cards for Repeat Samples

Z8400 ANYTOWN US		RP RPOR		Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	DataTime
PRINT CLEARLY - USE DARK INK  Collector's Last Name Ist Initial									
Collection Date	Collection Time	O Free O Total	Chain of Custody						
STEPHENSON LOC 119  Collection Location									
Comments:	0			Relinquished By	^	d By	*	d By	,
Microbiological Sample Complete all required Data  1340697  Collect and Ship on: 01/01/2020					Received By	Relinquished By	Received By	Relinquished By	Received By
Z8400 ANYTOWN USA	1	RP RPUP		Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time
PRINT CL	EARLY - USE DARK INK			Dag	Daf	Dag	Dad	Dat	Dail
	Collector's Last Name	Ist Initial							
	O AM	O Free	, po						
Collection Date	Collection Time	Chlorine Residual	Chain of Custody						
			o uia						
	Collection Location		Ö						
Comments:				d By		d By	_	d By	,
1340698	Microbiological Sample Complete all required Data	Collect and Ship on: 01/01/2020		Relinquished By	Received By	Relinquished By	Received By	Relinquished By	Received By
Z8400 ANYTOWN US	A	RP RPDN		Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time
PRINT CI	EARLY - USE DARK INK		,	Date	Date	Date	Date	Date	
	Collector's Last Name	lst Initia	1200						
Collection Date	Collection Time	O Free O Total	Chain of Custody						
STEPHENSON LOC 119			hain						
	Collection Location		1 0						
Comments:	9		]	ed By	A	od By	A	od By	
	Microbiological Sample Complete all required Data	Collect and Ship on: 01/01/2020		Relinquished By	Received By	Relinquished By	Received By	Relinquished By	

Figure 5-MIC. Three Sample Submission Cards for Repeat Samples

Figure 6-MIC indicates a sample submission card for a triggered Groundwater Rule (GWR) sample. A triggered GWR sample is required from each active well when systems using groundwater have a routine TCR sample with a coliform-positive result. This sample must be collected from the designated well specified on each card. The sample is required to be raw source water collected prior to treatment.

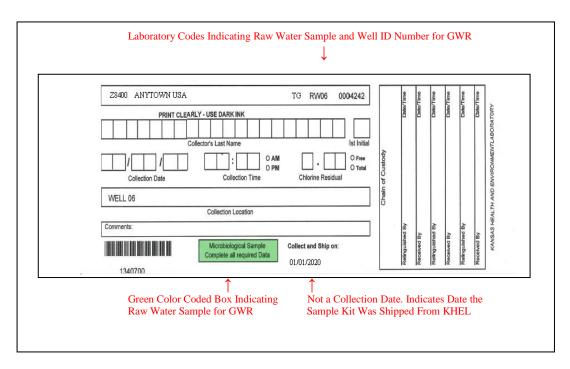


Figure 6-MIC. Sample Submission Card for a GWR Sample

Figure 7-MIC indicates that in addition to the green color coded box at the bottom of the sample submission card, the sample collection bottle for collecting a raw water sample for the GWR will have a green sticker on the lid.



Figure 7-MIC. Microbiological Sample Kit for GWR

## Temporary Routine Sample

Figure 8-MIC indicates a sample submission card for a temporary routine sample. Temporary routine samples are for systems that normally collect fewer than five (5) routine samples per month for the TCR, and had a positive result on a TCR sample in the previous month.

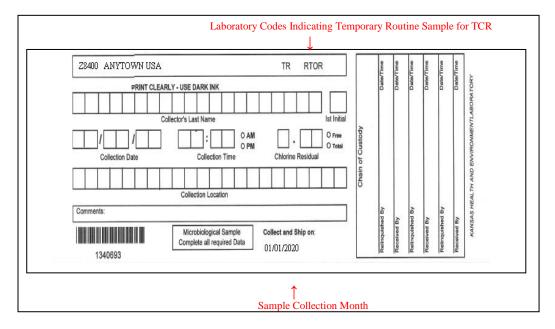


Figure 8-MIC. Sample Submission Card for a Temporary Routine Sample for the TCR

If a system normally collects fewer than five (5) routine monthly samples for the TCR and there was a positive result on a TCR sample the previous month, then beginning in the month following the positive sample the system must collect a minimum of five (5) routine samples per month until they have a month wherein all routine TCR samples are negative.

Calling KDHE with questions or concerns you may have is highly encouraged.

For questions about your microbiological sample kit or the sample collection process, call KHEL at 785-296-0971.

For questions about the Total Coliform Rule compliance or compliance monitoring schedule, call KDHE's Bureau of Water, Public Water Supply Section at 785-296-5518.